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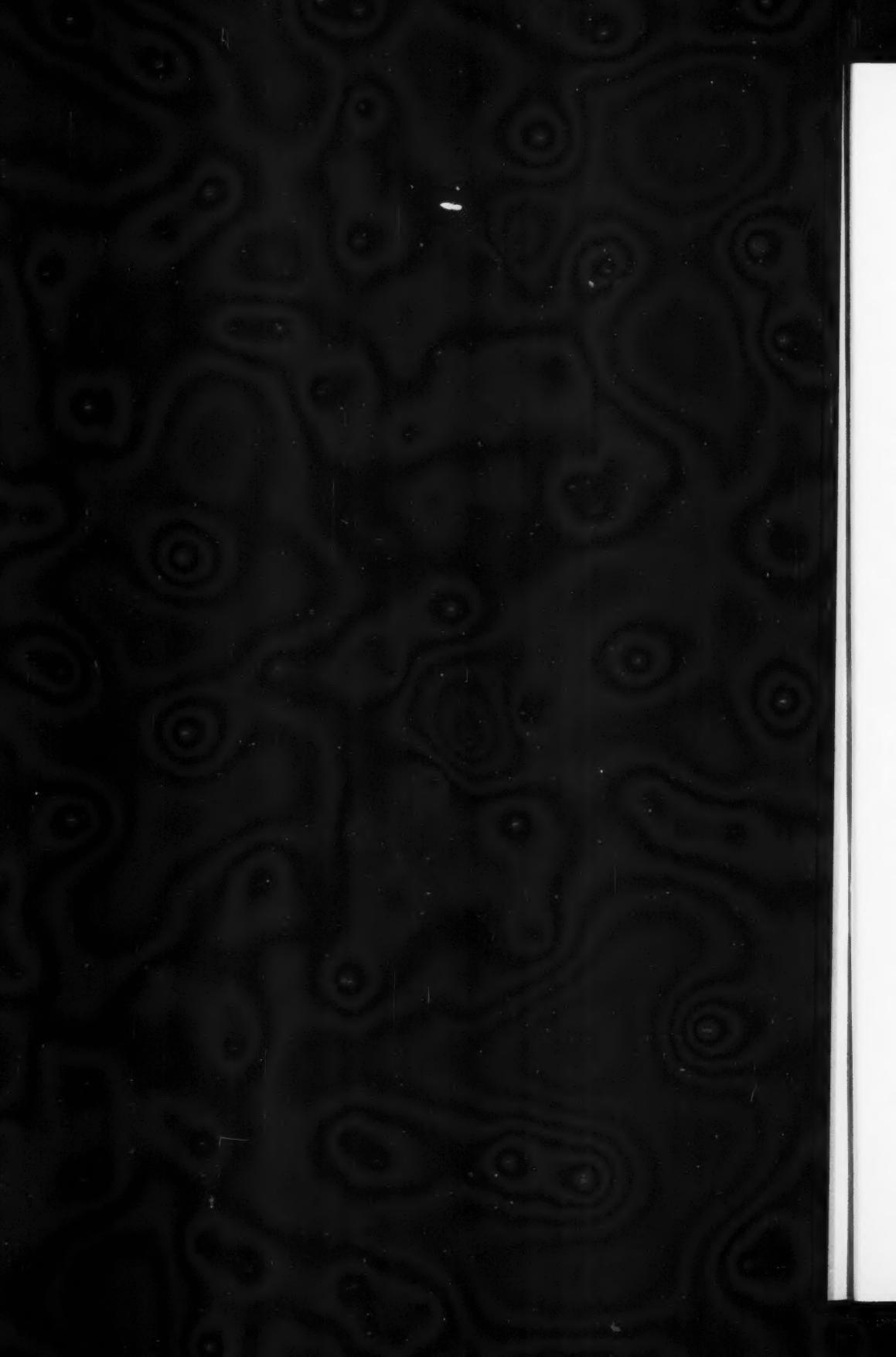
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Gottsch-Schleisner

Salvia coccinea

Sages for the Garden

HELEN M. FOX

It is the inevitable fate of the collector to widen his field. Consequently an enthusiast for herbs is likely to find himself deep in salvias. However, with the passing of time, space and labor being limited, only the handsomest plants and those most suitable are kept in the garden and the others are eliminated.

From the gardener's point of view sages can be divided into three categories: those hardy in northeastern United States and attractive in either a herb garden or perennial border; coarse sages with large leaves which require a great deal of space; and lastly sages lovely but not hardy that must spend the winter indoors. There are many species in each of these groups and only those tried and found satisfactory have been chosen to be mentioned in this article.

Many of the sages are native to the south west and Mexico. In fact, according to Carl Epling, the authority on Labiateae, the subgenus Calosphate is entirely American and originates from the highlands of central Mexico and Central America. Sages seem to be at home in all temperate and a few tropical climates.

All sages have square stems, flowers in whorls, with a two-lipped calyx and two-lipped corolla. The stamens are inserted in the throat of the corolla with only the lower pair fertile and the upper pair either rudimentary or lacking. The shape of the lower lip has been a determining factor of a species. In some species the bracts subtending the flowers are more colorful than the corollas. Bright yellow is missing in the genus through a few have pale yellow flowers. But when it comes to red

and blues, the colors are frequently brilliant. Almost all of the sages have a strong smell.

CLASS I SAGES SUITABLE TO BORDERS OR A HERB GARDEN.

No herb garden would be complete without *Salvia officinalis* one of the best known of all herbs, used before the days of written history for medicine and flavor and native to the Mediterranean. The plants grow about two feet high and form a much branched shrubby and long-lived perennial. They bloom in June and there are three color forms, one a lavender blue, another dull pink and a white-flowered form. This last is lower than the type and has smaller leaves. As with all herbs the plant can be grown from seed or increased by cuttings. In early Near Eastern literature the leaves of *Salvia officinalis* were likened to camel's tongues, because of the long slender shape and puckered surface. They look grey but are grey green and have given the name of "sage green" to our color terminology. The leaves taste of camphor and smell sharp, acrid and pungent. Too strong a use of herb leaves as a flavor is unpleasant and is hard on digestion.

Another well-known herb of the sage family is *Salvia sclarea*, clary sage, which is used as a fixative in perfumes and as a medicine. It is native to southern Europe and is biennial. Its beauty is due to the colorful leaflike bracts tinted violet-blue and roseate which subtend the whorls of flowers growing in pairs of threes and also to the silky gleam of the foliage caused by the light

on the long soft hairs. The flowers open in July. The plant grows two feet or more high and has large, coarse, irregularly dentate leaves. Var. *Turkestanica* has violet bracts shaded with green and the whole plant is larger than the type.

Another biennial and from the same region but not as hardy as *sclarea* is *Salvia argentea* which has white flowers. The whole plant looks grey with its almost silvery foliage.

One of two annual herbs for the garden is *Salvia horminum* which brings gaiety to any planting because of its conspicuous leaf bracts colored either white, deep blue or rose pink. The plants grow about eighteen inches high and self sow freely once they have bloomed in the garden. Another well-known and popular annual is *Salvia splendens*. The red form is planted almost too frequently but unusual color forms with flowers of deep purple or salmon and even white are charming. These are best reproduced by cuttings.

A European sage indispensable for the border is *Salvia pratensis* which begins to bloom the end of May and repeats on and off all season. It grows two to three feet high and the stems are sometimes slightly recumbent. The flower spikes are subtended by a pair of green bracts and rise to from seven to fourteen inches. The leaves are humpy, hairy below, roundedly and unevenly toothed and grow smaller and narrower as they ascend. The flowers come in either violet-blue, magenta or pink and sometimes blue and in others white.

Lovely either in the herb garden or perennial border are *Salvia farinacea* and *Salvia azurea*. *Farinacea* is called "mealy cup" and comes from western Texas and southern New Mexico and blooms in late summer. It is a half

hardy perennial in North Eastern United States and has to be replaced each year either with seed grown plants or cuttings. The plant grows from two to three feet high. The stems are hairy and the calyces white with fur, but the leaves are shiny, ovate, toothed and about four inches long. The flowers grow in long terminal spikes and have the upper lip covered with purple hairs and the lower one marked with two long white spots. They are colored either lavender-blue, pale blue or white.

"Blue sage" as *Salvia azurea* is called, is to be found wild from South Carolina to Florida and west to Texas along sandy roadsides and in open spaces. In the garden it blooms way into October where it makes a handsome companion with other late blooming sages as also to pink *speciosum* lilies and late aconites. It is prettier than *farinacea* and has somewhat stiffer stems but even they need staking. They rise to two to four feet high and are rough to the touch, since the whole plant is covered with tiny hairs. The leaves are lanceolate, narrow at both ends and toothed part of the way and bluish green. They have no petioles and are about three inches long. Leaf-like bracts subtend the crowded floral whorls. The flowers about one inch long are a "dull blue violet," the calyx is green marked brown and furry. The floral spike is about three and a half inches long. The texture and shape of flowers and leaves is very pleasing.

Like the above, only prettier, is *Salvia Pitcheri* generally sold under the name of *azurea grandiflora*. According to Bailey, stem and foliage are slightly greyish from a fine mealy pubescence visible only under a microscope. The stems are two to five feet high. The leaves two to five inches long are lance shaped, the upper ones almost linear

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Salvia officinalis in Herb Garden with *Alliums*

and finely sawtoothed. The small flower clusters form dense spikes at the tips of stems and branches. The calyx is ribbed, the corolla bright blue, deeply two-lipped and often one inch long. There is also a white form. This plant is native from Minnesota to Illinois and south to Texas.

A delightful shrubby and hardy perennial is *Salvia superba* sometimes erroneously called *nemerosa*. The plant is not over eighteen inches high and has violet spires of flowers that repeat during the season. After the flowers fall the reddish bracts are handsome and colorful.

CLASS II COARSE SAGES FOR BORDERS OR FOREGROUND OF SHRUBBERY.

There are always places in front of a shrubbery or along walks where a fragrant, somewhat coarse plant is welcome. Among the sages many answer to this description. One of these is *Salvia glutinosa* from Europe and Asia which blooms in July and is unusual among the sages in having pale yellow flowers. The leaves, too, are tinged with yellow, five inches long and two and a half across and slightly odorous when touched. The plant is not especially good looking but is effective in the right position.

From the region that has given so many lovely plants, namely where Yunnan and Szechwan border on Tibet, comes *Salvia Przewalski*, which blooms the end of May and into June. The humpy leaves are triangular or hastate, doubly toothed, large and yellow green and growing on long petioles. The flowers grow in spikes, seven inches long and are violet blue, almost royal purple, with hairy calyces tinted magenta. The spikes are so woolly and so long they resemble purple foxgloves.

From Europe, Asia Minor and the

Caucasus comes *Salvia verticillata* a stunning plant that blooms in July and grows about a foot high and eighteen inches across. The lyrate pinnatifid leaves are woolly, soft to the touch, dark yellow green with scalloped margins and measure over two inches long and across. The violet blue flowers grow in whorls on spikes nine inches long. The principal color of the plant comes from the reddish violet stems and calyces which persist after the corollas have fallen.

A hairy plant is *Salvia sylvestris* originally from Europe but found naturalized in Ontario and Pennsylvania. All through June the flowers bring purple to the garden, handsome with yellow lilies. The stems are three feet high, the leaves with many veins are netted on the under surfaces. The flowers are helmet-shaped, violet-blue and white or lighter. The calyx is green and red and the buds before opening quite red. The plant smells faintly of clary.

From southern Europe and the Orient comes *Salvia virgata* a sprawling, hairy plant blooming in September with spikes of lavender blue flowers.

Bearing the unpronounceable name of *Salvia heirosolymetana* is an August blooming plant three feet high with larger flowers than most of the coarse salvias being an inch long and wide and having greenish white tubes and violet blue lobes. The lower tip has a large white mark on it and dotted lines of color. The leaves look as if a piece had been torn out of each side near the base. The flowers have no scent.

CLASS III SAGES NOT HARDY IN NORTH EASTERN NORTH AMERICA

Where the winter climate is severe these beautiful plants have to be wintered indoors. Some of them are so

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Margaret DeM. Brown

Salvia officinalis var. *alba*



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The pink variety of *Salvia splendens*

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Pineapple sage
Salvia elegans

deliciously fragrant it is worth the trouble of holding them over to keep them alive. One of these is *Salvia elegans* formerly called *rutilans* and popularly known as Pineapple sage, a native of Mexico as are so many of the gorgeous half hardy relatives. Its outstanding character is its fragrance of pineapple which can be imparted to jams, jellies and stewed fruits. The plant is roughly hairy, grows into a much branched shrub two to four feet high. The brilliant red-tinted carmine flowers grow in a spike one foot long. They are fairly long and narrow and look like fire crackers. They begin to open in October and after the plants have been moved to the greenhouse sometimes bloom all winter.

The seed of *Salvia coccinea*, a brilliant scarlet flowered plant, came to me from the South West Arboretum and the plants bloomed two and a half months after sowing. It is perennial and native to damp places in American tropics where it is a weed. The plant has been naturalized in Alabama. The stems grow to two feet and are branched and covered with long silky hairs. The leaves are cordate with crenate margins and forest green. The petiole and veins on the under side are hairy, the rest is smooth. The flowers grow in whorls spaced far apart and form an elongated spike five inches long of whorls composed of two clusters each with seven to eight flowers. They are brilliant yellow red. The upper lip of the corolla folds down on either side and the lower one extends and forms four lobes.

Similar to the above in effect is *Salvia microphylla* from central and southern Mexico. It is a bushy, much branched plant, about two feet high and softly hairy. The leaves are small spatula-like and finely dentate, one inch long and three-quarters across. When

in the bud stage they are pale yellow green and look like white spots. The whole plant is brilliant with flowers of a vivid scarlet with a tinge of crimson. They are born in whorls in short terminal spikes. The plant flowers vigorously for a long time. The leaves smell faintly of sage but the flowers seem odorless. It is easily increased from cuttings.

Almost the loveliest blue in the whole garden is carried by the flowers of the Mexican *Salvia patens* a true sky blue and of a soft texture. Sometimes there are forms of a deeper, less attractive shade of blue. Unfortunately it is a shy bloomer and to keep the right color going and start it early, it is best to increase from cuttings. The plant grows two to three feet high. The flowers are large and conspicuous, being two inches long and are borne in an elongated panicle and look a little like beaks of parrots. The foliage is arrow-shaped, softly woolly and the leaves diminish in size as they ascend the stems. There are three white transverse bands at the base of the lower lip.

A neat little shrub from Texas and Mexico is *Salvia Greggii* that begins to flower in September. It is woody and much branched and thickly clothed with green, linear, oblong leaves which smell peppery and sagey. The whole plant is only faintly hairy. The flowers in racemes about two inches long are a beautiful shade of deep rose, with dark bluish tones and the stalks are rose magenta or wine red. The flowers are thin textured. In the white form called *alba*, the blossoms are white and in a form called *rosea* they are pink to red. In all plants they are sparse in proportion to the size of the shrub.

One day a packet of seed arrived from California which was so fragrant it could be smelled through the envelope. This was seed of *Salvia Cleve-*

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Salvia microphylla



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Salvia Brandegeei

landii. The fragrance is so strong it persists in herbarium specimens years after the plants have been collected and dried. The fragrance is entirely delicious, flowerlike with a tiny tinge of sage and when the plant is in bloom in the garden or on the terrace the whole place is scented. *Clevelandii* is native to the mountains behind San Diego at 2200 feet and is a common low shrub on dry upper Sonoran slopes for a considerable portion of San Diego county and adjacent Lower California. The plant grows three feet high, blooms in July and has grey stems tinged reddish and elegant grey leaves similar in texture and shape to those of *officinalis*. The margins are finely and roundly serrate, the leaves two inches long and three-eighths across. Superficially the flower heads look like bee-balm. The inflorescence is rounded, composed of glomerules which are solitary or in two to three remotely interrupted spikes. These glomerules are subtended by hairy, pointed and overlapping leaf-like bracts. The flowers of a dark violet blue do not open all at a time. They are three-quarters of an inch long and slender. When in bloom the glomerule is two inches across. The lower tip is plain and oblong.

From the dry plains and foot hills in the southern part of California in low altitudes and also from the nearby islands comes a shrub called Black Sage, *Salvia mellifera*, highly prized by beekeepers. It grows three to six feet high, has leaves similar to *officinalis* and is fragrant but not nearly so much so as *Clevelandii*. The flowers bloom in early spring, are pale blue and sometimes tinged rose or white. Hybrids

are said to be common with *S. apiana* and *S. leucophylla* and *S. Columbariae*. In its native haunts, the species comes up after fire, chiefly from seeds. The outstanding character is that the middle of the lower lip folds upward. *Salvia mellifera revoluta* is characterized by strongly revolute leaves and very short stamens and pistils and comes from the Island of Santa Rosa where it blooms in June.

A shrubby Californian is *Salvia Brandegeei* blooming in early spring. The plant is several feet high and has long slender leaves characterized by humpy round glands over the whole surface. The leaves are bright green above and woolly below. The attractive flowers are half an inch across and grow in many flowered whorls in short terminal spikes and are pale pinkish violet in the greenhouse, probably deeper out of doors. The unopened buds are woolly and tinted lavender. The leaves have a pleasant fragrance as have the flowers.

Two annual sages from California close the list. The first is *Salvia Columbariae*, with the leaves mostly basal and flowers in glomerules subtended by round colored bracts. The other is common spring plant in Southern California, *Salvia carduacea*, and is ten to fifteen inches high, has thistle like basal leaves and the flowers are in close whorls. It is very woolly. The flowers have soft long cottony hairs on the calyces and a violet corolla.

This is by no means a complete list but merely a selection by one gardener of sages found attractive for the garden. Peekskill, N. Y.

Collecting Plants Beyond the Frontier in Northern British Columbia

PART VIII

1935 EXPEDITION

MARY GIBSON HENRY*

The morning of July 15th I awoke at four and watched the rays of the rising sun touching the mountain tops. As always it was one of nature's magnificent sights. It was clear and cold, 15° F. at getting-up time. I always wore a silk nightgown with a sweater so dressed hurriedly. Perhaps Jo was wiser, she slept in her clothes. Two hours after sunrise it was only 28°. Later on, at mid-day, with a brilliant sun shining in a cloudless sky the temperature rose to 80°! It was a joy to be alive on such a sparkling day. On cloudy days the mid-day temperature usually hovered around 40°-50°. These extremes are not unusual, but it does make dressing a problem. Once our clothes were packed we could get nothing more until we stopped for the night. Donning an extra flannel shirt in the morning usually solved the problem; it was then easy to peel at noon when it became warm. I brought with me a small prospector's thermometer so I could record the daily temperature in my diary.

That night we slept in the shadow of Mt. Bertha. As the evening shadows deepened, Mt. Bertha became tinted with that wonderful glowing red that I had seen on her huge hulk before. Ever so gradually she turned dark purple until night enfolded her in a coal black mantle. Above our tiny white tent she seemed to stand on guard. There were many mosquitoes and other avid insects here, but in a place of such awesome beauty only the big things

count, and one does not notice trifling discomforts.

Next morning, July 16th, began with another gorgeous dawn as the rising sun emblazoned the sky with a hundred shades of changing red. The deep purple mountain, sharply outlined against the brilliant sky, made an impressive spectacle. It was Jo's birthday and very fittingly it was a glorious day, the best gift she could have had and she appreciated and loved it all, even as I did.

There was, as usual, a heavy coating of ice on our water bucket. Nearby in a cosy grassy nook, hundreds and hundreds of purple violets, *Viola nephrophylla*, bloomed with serene loveliness. Hardy little gems of the northland, they looked for all the world like a patch of violets at Gladwyne!

After a short ride we turned west and stepped off the map.

In a few hours we came to a splendid spruce forest, and after that we rode through meadows that were pure unalloyed blue, for *Polemonium caeruleum acutiflorum* grew here in countless myriads. They were simply magnificent and nearly at their zenith. Hundreds of *Mertensia paniculata* raised their gorgeous heads of deeper blue bells among them, the blues mingling superbly and scarcely a leaf was visible. Never can I forget the beauty of our camp spot that night when we

*The Royal Scottish Geographical Society recently awarded Mrs. Henry the Mungo Park Medal for her explorations in Northern British Columbia, 1931-1935.—Ed.



Mary G. Henry

*Upper—That night we slept in the shadow of Mt. Bertha.
Lower—Josephine deN. Henry beside a trapper's cabin.*

set our tent right in the midst of that heavenly meadow. Dark clouds soon came bringing a hailstorm of short duration.

In spite of being woefully short of food, Jack helped us celebrate Jo's birthday that night by producing a wonderful two story cake that will always be remembered as one of the bright spots of the trip. It was a happy occasion but I missed the other members of my family and wished they too, were with us. We slept soundly in this enchanting spot.

Never, never can I forget my horror next morning when I awoke and saw the devastation our horses had so blindly wrought. Only a few torn and bedraggled polemoniums remained to greet us. Their all too brief day was over for they had served as a midnight feast for our four-footed companions! The early morning temperature was 44°, the first mild day we had had for some time.

Again the horses needed a "day off" to rest. After wading an icy creek, thigh high, accompanied by McCusker, I climbed a mountain, alt. 7400 ft. The day was cloudy and as we rose above timberline, a wild, wintry scene of dark jagged mountain crests, too steep to hold snow, was spread before us. The beautiful *Salix alaxensis* was growing plentifully in rocky debris, at about alt. 5000 ft. It is an astonishing shrubby willow with glossy deep olive green wrinkled leathery leaves that are felted with snow white wool beneath. Another notable willow that grew on that mountain top was *Salix polaris* var. *selwynensis*. It creeps over the ground and its full height, up there, was but 1 or 2 inches. The sun did not shine all day and it was so cold and blustery on the summit that I was scarcely able to breathe. There were few flowers in bloom except the brave little Drabas,

D. nivalis, *D. glabella*, *D. lonchocarpa* and *D. incerta*. All were yellow flowered. The amazing *Saxifraga oppositifolia*, hanging upside down under a rocky ledge, was studded with its handsome jewel-like little lavender flowers. This plant actually seems to melt the snow, as I found it sometimes growing right through a solid sheet of snow with just about a half inch margin of bare ground around it. Time passed too quickly, as indeed for me it always does on a mountain, and as the sky was dark and stormy, we knew we must hurry to get back "home" before dark.

The way down was steep and over rough stony ground and wet scrubby vegetation. McCusker went so fast that much of the time I had to run down the steep, rocky incline. We forded the creek again crossing it lower down where it was deeper than before. The water was so swift I could scarcely "make it." I took off my stockings wrung them out, poured the water out of my shoes and put them on again. Supper as usual tasted mighty good even if our butter and jam were at the bottom of the river!

On July 18th we delayed our packing up and departure for a while as it was raining hard. Ben, the Indian, remained behind with some of the horses. We left much of our duffle here, to pick up on our return. At times we rode through the beautiful northern fir, *Abies lasiocarpa*. There were many forms. Some with horizontally extended branches and others with drooping branches grew side by side. The trail, at best a faint "game trail," just about vanished. The branches of the spruce trees were almost as hard as iron. Everyone of us and most of the horses were cut and bleeding somewhere. Our clothes merely became more ragged.

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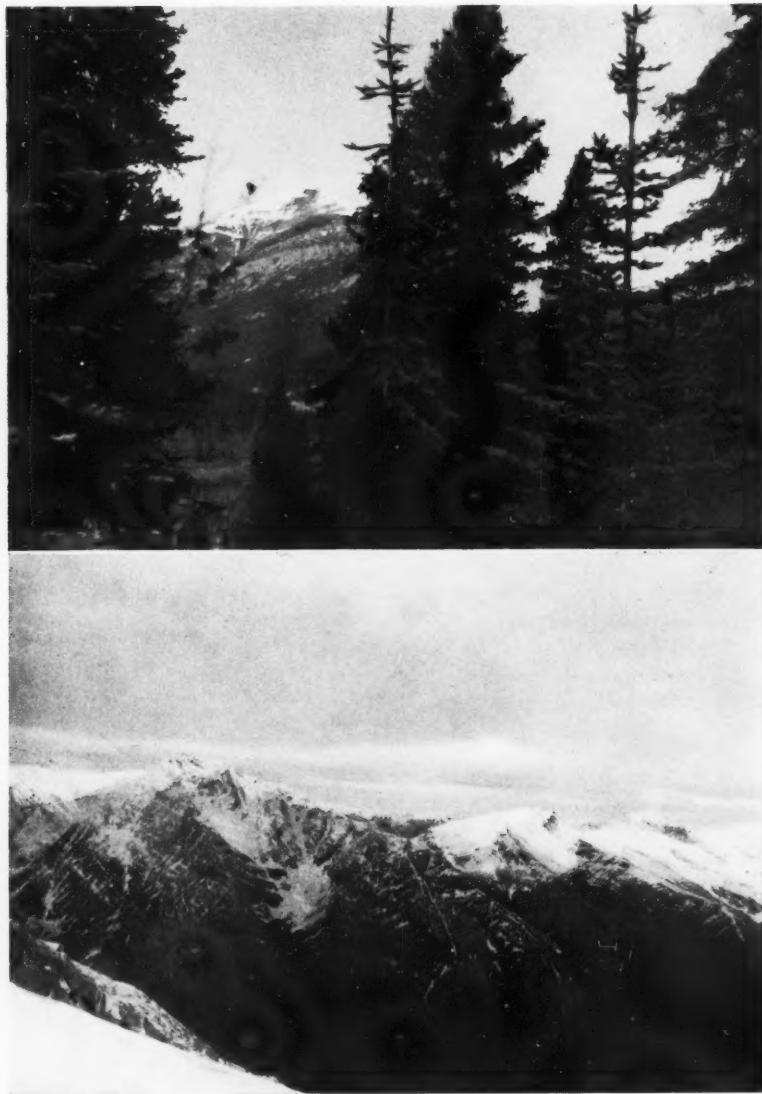
Josephine Henry

Polemonium caeruleum acutiflorum.



July 17. Looking east down over the valley of the south fork of the Nelson River
—Mary G. Henry.

Looking west from mountain, altitude 7,400 ft., east of Akie Pass—K. F. McCusker.



Mary G. Henry

Abies lasiocarpa. Trees with horizontal branches and others with drooping branches grew side by side.

July 20—Southeast from mountain, altitude 7,600 ft.

That afternoon the rain turned to sleet and snow. Darkness came sooner than we expected. We could scarcely see and our horses could hardly stand on the icy rocky ground that was whitening all around us. For the time we lost our bearings. We stopped and camped where we were, right on the rocks. No one was comfortable but no one complained.

Next morning I peeked out of the tent at four. It was still bitter cold and the ground was covered with snow. Soon we heard Smoky's cheerful laugh and Tony's happy echo, louder here than usual because our tents were all set closely together. Again rain descended and washed away the snow and ice. With daylight we retraced our steps until we reached a faint Indian trail, when we continued on over the Akie Pass. In places the trail was extremely rough and we covered miles on foot to relieve the horses. We forded and camped that night on the Akie River. It was a very pleasant camp ground in this narrow valley and the rugged nearby mountains towered above us. There were many splendid clumps of the small but exquisitely lovely white ladyslipper of the northland, *Cypripedium passerinum*, no flower on earth more beautiful. Another interesting orchid was the little *Corallorrhiza trifida*. There was an attractive narrow-leaved form of *Salix brachycarpa*, a 3-6 ft. shrub, one of the prettiest of the northern willows.

The following day I climbed a mountain northeast of camp, alt. 7600 ft. McCusker took his instruments for observations as usual, while I carried my plant press and camera. There were, of course, no trails up any of these mountains. We just headed for the base and then went up. If it was impossible to negotiate one place we had to find another. Often near the foot

of the mountain there was much fallen timber to scramble over and this was always slow, hard work and greatly retarded our progress. There were frequently small rivers or streams to wade and bogs through which we must struggle.

The sky though clear early in the day soon clouded over. There was so much more snow this year than I had yet seen in northern British Columbia, the scenery was more magnificent than ever. After a long and strenuous climb we rose above timberline and the marvelous sight of peak after peak of snowy mountains met our eyes. The flowers, too, were beautiful.

Not far off large deep purple mats decorated the ground. Upon approaching they turned out to be composed of masses of a striking deep purple-colored species of dodecatheon. They were very lovely, almost the color of violets instead of the usual magenta. The flowers were sweetly fragrant. The large snow white, golden centered blossoms of *Dryas integrifolia* nestled like small water lilies over its closely matted dark green foliage. It is a most lovely dwarf evergreen creeper, a tiny prostrate shrublet, really. Snow lay deeply in all the hollows. The dark gray sky made the mountains seem whiter than ever.

We soon reached a steep slope where mountainside was nothing but broken shale. With every step the shale slid so badly it seemed impossible to cross over it. Indeed, in places the whole side of the mountain seemed to slide in an indescribable and horrible way and it looked as if we might easily get lost forever, buried under tons of rock. If we had stood still for even a few seconds we might have been firmly anchored there. On other occasions I had run into similar situations. It is necessary to cross or climb over such

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Mary G. Henry

Near the source of the Akie River.

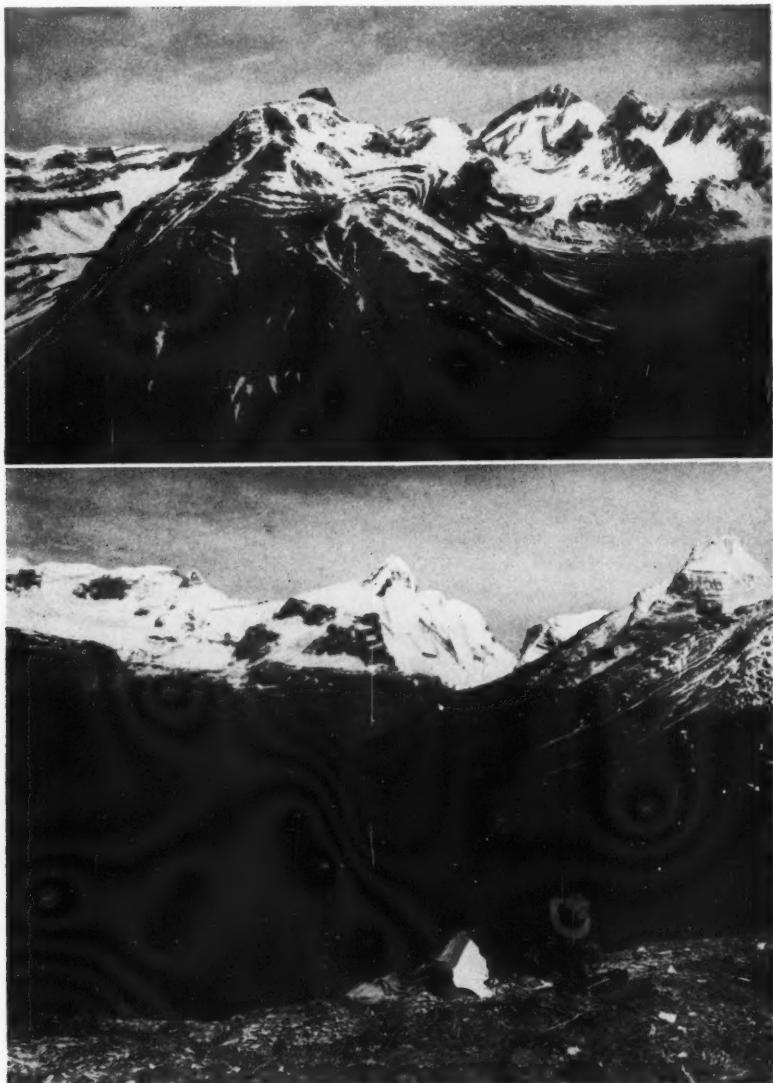
places at high speed. Making it even more difficult, much of the shale was glazed with a coating of thin ice. A terrific gale was blowing and for a while going safely either forward or backward seemed almost impossible. As we climbed up higher and higher our way became steeper and rougher until at last we found ourselves at the foot of the rocky tower-like formation that forms the summit of the mountain. This peculiar promontory was not visible from camp or from our trail. At first glance it seemed impossible to climb to the top, but the old adage, "where there's a will there's a way" holds especially true in the mountains. After scrambling over huge rocks and floundering around in a doubtful and dangerous fashion in deep fresh snow, we found a sort of "chimney" or vertical wide crack in the rock where pressure with arms and feet on both sides of the slit in the rocks substituted for the usual type of footing. I enjoyed the exhilarating and exciting climb tremendously, the uncertainty and danger adding immensely to the thrill. At last, as I peered over the stark, cold, bare rock that formed the summit, my heart pounded with that particular sort of joy that only mountain climbers can understand. I thrilled at the thought that for hundreds of miles in every direction there was no other human soul, only Jo and Smoky on another mountain, far away, and the men in camp, mountains, mountains everywhere and in every direction as far as the eye could see. The sheer ones looked inky black and the curious ledges formed by erosion and white with snow, partially told the story of their ancient geologic history.

We saw, to the northwest of us, the other side of the great crumpled mountains that rose west of Redfern Lake, that we had seen in 1932. When the

earth was in the making the molten rock that formed these mountains must have been heaved and doubled up. Since then, but still in ancient prehistoric days, glaciation has taken place, so that now each of these mountains has a huge S on the eastern and western sides. The S is just about as high and as broad as the mountain, and outlined with snow it forms a most unusual and spectacular sight.

Just to the north of us rose a truly magnificent snow white mountain, quite regularly formed and shaped like an elongated dome, with a dark rocky turret at one end. The turret was surmounted by a symmetrical peak. If ever a mountain resembled a church this one did. Intense cold prevented us from remaining long on this inspiring mountain top, long enough only for McCusker to take the necessary elevations and observations. My half sandwich and small piece of chocolate, that usually formed my lunch, emerged from my pocket as I tried to shield myself from the frigid blasts, behind a rock. In a few moments I was slipping, sliding, stumbling and falling down the mountain for the several hours it took to reach its base. Two little greenish orchids, growing in the deep soft moss, caught my attention, *Listera borealis* and *L. cordata*. These tiny plants, only a few inches high, were not at all showy but anyone fond of orchids would enjoy their small but attractive flowers.

The thermometer must have fallen very low in the night, for next morning the ice on our bucket was extra thick. There was time to climb another mountain and, among other plants, I found *Arnica obtusifolia acuta* Raup growing up above timberline, the new variety I found in 1932; and then the major part of the topographical and botanical observations for the year was over.



Mary G. Henry

July 21—McCusker works on the map, altitude 6,500 ft. in the Akie Pass.
Looking northeast from mountain, altitude 7,600 ft.

July 22nd found us starting on the homeward trek, retracing our trail back over the beautiful Akie Pass. We climbed up on foot and so relieved our horses, for the way was difficult and heavy with muskeg!

We stopped early, about 11 A.M., right beside a little lake. The water in the lake was the warmest I had felt all summer, temperature 56°. Alas, it was too shallow for a swim! That afternoon I found time to climb a small mountain by myself. There being no sign of any kind of a trail at all, I just aimed up through the dark forest. Snow lay on the ground by the time I was above the tree line. The grandeur of the country, everywhere I turned, and the fascination of the awe-inspiring and tremendous silence lured me on and on. Suddenly from the rocks just above, bleak and bare except for ice and snow, came a long drawn out howl. Again and again it came, in eerie fashion, the only sound in a world that was otherwise as silent as the grave. I scanned the mountainside but saw no living creature. It sounded like a mountain lion I heard screeching in the New Mexican mountains years ago. Doubtless this was a cat of some sort, I suppose it was a lynx. After wandering around and searching unsuccessfully for it for some time, I started to descend the mountain. Soon I came to timber and my footsteps were soundless as I trod on the velvety forest floor. Nearby some large animal could be heard as it prowled about, breaking sticks and not small ones either, a bear, perhaps, judging by its heavy tread. I had wandered farther than I had intended to, as it took me quite a while to get back to camp, but I enjoyed this little venture by myself.

Next day there was some bad muskeg to traverse. I was off and leading Belle to make it easier for her. When

we came to an extra bad place she struggled so violently she almost jumped on top of me and I just got out of her way in time.

Now McCusker is an able topographer but he is not equally skillful at pitching a tent. That afternoon he set up our tent and while he was pegging it down, it collapsed. Jo and I laughed and Smoky, who was nearby, rolled over and shook with glee. McCusker persevered and set up the tent again, but after one glance at it, that night I decided to sleep in my clothes, as Jo always did, and this at times had decided advantages.

Food in camp was now really scarce, not much left but a little bacon, flour, sugar, cocoa and salt. Jack did his best, no one could have done better, but he could not make something out of nothing. We sometimes gathered the pretty *Allium schoenoprasum sibiricum*, a native garlic, to flavor our meager diet. But the days were days of unalloyed bliss for we were riding through the marvelous blue mountain meadows of the northland. So plentiful was *Polemonium caeruleum acutiflorum* in these great stretches that, in places, it almost seemed as though we were riding through Heaven's own blue.

When we reached the Caribou Pass, July 25th, all the flowers seemed to be in bloom. The floral display in the far north is nothing short of miraculous, for all the seasons of bloom are crowded into a few short weeks, making this northern world a fair sight indeed. We camped in the Pass for several days in order to climb and explore the nearby mountains.

The first evening Jo and I walked up on the ridge we heard a familiar sound. A robin was flitting about among the little timberline balsams, *Abies lasiocarpa*, and calling sweetly in true southern fashion. We

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K. F. McCusker

August 1. Leaving Laurier Pass.

remembered seeing and hearing one in this same place in 1932, probably the same bird! The inconspicuous *Campanula uniflora* was blooming through tufts of pale gray lichen. Now and then I saw *C. lasiocarpa*. Alas, this season I did not get a single glimpse of my favorite campanula, the beautiful *C. aurita*. The two inch high golden yellow *Solidago multiradiata* dotted the ground with small and dainty yellow tufts. The adorable little *Kalmia polifolia microphylla* was covered with its crimson pink blooms. Nothing could be more enchanting than this tiny 6 inch shrublet. The showy and attractive *Oxytropis splendens* grew plentifully in dry places. The pretty flowers rising from silver foliage made a delightful display.

Higher up the mountain we found a snow bank and went coasting. It was great fun, we just sat on the bare snow and down we went, but not always right side up! That night we had a soft mattress to sleep on, composed of the beautiful little *Cassiope tetragona*.

The following morning we went coasting again. Then we divided up for the day. I aimed for one mountain and Jo for another. We always went our different ways, so we could double the amount of ground. It soon began to rain. Black clouds gathered from every direction and a downpour descended. Return to camp? That thought was far from my mind and I laughed. My thoughts were dwelling on the beautiful flowers I knew must find at home on that high hill. And so with trickles of ice water running down my back, I climbed on up, up through lupines, marvelous mertensias, dainty little *Oxytropis arctobia*, forget-me-nots and monkshoods, masses of them, blue as I wished the sky were and rosy velvet paint brushes that contrasted brilliant-ly. The rain soon turned to snow but

not before my plant press was drenched through and as heavy as lead on my back. My moosehide gloves held the water as if they were made of rubber and now and then I emptied them. After a while the snow stopped and a thick blanket of fog descended. McCusker resorted to his compass for we could scarcely see an arm's length ahead. Rarely have I turned back, but this time I did. We had no lunch nor had we any desire to eat. Every stitch I had on was soaked and when the wind blew it seemed as though it blew on my bare skin. We just rushed on, almost blindly, through fog as dusk came on until, at last, we reached camp. That evening supper tasted unusually good and the tent seemed very cozy.

We were caught in a storm in a similar way on another mountain the very next day.

The 28th I again went up a mountain, alt. 8,000 ft., through pouring rain that trickled through my hair and down my back. My felt hat, as usual, was stuffed with flowers. It was rarely on my head. The flowers of course were lovely. *Potentilla uniflora*, one of the nicest mountain plants, *P. nivea*, snow white on under side of leaves, also *P. dissecta* are all tidy plants with pretty yellow flowers. They rank highly as rock plants. There were many saxifrages and they clothed the rocks with close green cushions, cascading over boulders and following along crevices in graceful fashion. Among those I collected here were *S. caespitosa*, *S. tricuspidata*, *S. cernua*, *S. nivalis* with dainty cream-colored flowers and *S. flagellaris*, yellow-flowered. When I reached the summit of the mountain it was snowing again.

On the 29th, still in Caribou Pass, we were completely "snowed in." Large white flakes descended and lay



Mary G. Henry

Cypress Creek—Jo trying to keep her clothes from falling apart.

thickly on all the mountains. Balsam trees, too, were heavily laden, making this wonderful white world the most beautiful Christmas scene I ever saw, although it was July!

The days were getting short and this evening McCusker brought us a candle at 8:45! It seemed like quite a "cityified" luxury.

The 30th cleared somewhat and found us on our horses again. Jo and Smoky rode off to the east and I went to the west up over the shoulder of a mountain. *Erigeron compositus trifidus*, the prettiest erigeron I have seen and wholly suitable for the rock garden, was the most interesting plant I found.

The others ran into lots of excitement when they saw some goats. Smoky made a lariat and roped one for Jo to play with. It jumped into the nearby river but soon swam ashore and then they let it go.

The season had been a wet one with much rain, many storms and sometimes even inside our tent the ground was so wet, it "squashed" at every step. The horrible muskegs were still bad but our horses, many by this time without packs, struggled and foundered bravely through them, while we followed as best we could on foot. Exhilarating swims in icy lakes or rivers always refreshed us in the evenings. The rain and snowstorms only showed us the beauty and made us appreciate all the more the delicious warmth of the midday sun.

That night we camped in Cypress Pass. Unfortunately next day it was raining again, but I longed to climb one more mountain, my last for the year. So I started out anyhow to climb Mount Laurier. At first we went up through shoulder high scrubby willows, sopping wet and growing so densely that they were difficult to penetrate.

After that we came to a strip of spruce forest and then reached the last of the timber, a dense growth of small rigid timberline balsam. This latter nearly tore my clothes to "tatters" and my hands and face got scratched as usual. High up, *Mertensia paniculata* was just beginning to open its sky blue bells. Farther on I came to a sort of pocket in the rocky ground where grew the most startlingly beautiful forget-me-nots I had ever seen. They were a wonderful deep robin's egg blue! The greenish tint was most unusual and very handsome. Although the rain had stopped where I was, the mountain summit was buried in storm.

Fishing was excellent along Cypress Creek and in the Graham River. Fishing in the evening meant a good breakfast next day. During the evening of August 1st it only took a short time to catch three beauties.

We rode for much of the next day through valleys along Cypress Creek and it seemed again as though the sky had descended to beautify the earth. Nothing could have been more beautiful than the immense meadows of light blue polemoniums and through them rose the deep blue spikes of *Delphinium scopulorum glaucum*. There were many handsome color variations of the delphiniums; in addition to pure white flowers some of the plants bore pale sky blue, deep heliotrope, gray or pinky plum-colored flowers. The little sapphire-colored *Penstemon procerus* carried many lingering blooms and the dark midnight purple flowers of *Aconitum delphinifolium* were beginning to raise their ornamental spires. Later on we came to an opening in the forest where the delphinium grew with great vigor. One of the plants reached above my horse's ears. Scarcely believing our eyes McCusker measured a stalk. It stood 9 ft. 3 in. tall!



Mary G. Henry

In front of the cook's tent. Left to right, McCusker, Mrs. Henry, Josephine, Smoky and Tony.

There were some magnificent ferns, *Athyrium Filix-femina*, growing in the woods above the Graham River. Their size was amazing, for never in my life had I seen any of such noble proportions. So I dismounted to better examine them and take some specimens for my press. A frond measured 4 ft. 2 in. long!

August 3d found us riding through miles of beautiful meadows all ablaze with delphiniums. That afternoon we came to two wagon ruts. My heart sank. Worse yet a row of fence posts soon came in sight. We had reached Baxter Brady's ranch. Our trip was over and we were on the broad highway of everyday life once more.

After 491 miles on horse and foot in 41 days, we reached Hudson Hope on August 7th. That night I sat on the high bluff that forms the north bank of the Peace River. The days were short now. As darkness dimmed the red glow in the western sky I watched

a million stars come sparkling into the deep blue above. The great round moon rose slowly with supreme majesty from behind the distant coal black mountains.

I bid a speechless goodbye to my beloved hills, but the northern moon is a beckoning moon and I knew that some day I would answer the "Call" again.

LOG—1933

- June 28—Near Taylor Flats, north shore of Peace River.
- July 5—Forged Graham River. Three of our men almost drowned. Lost 450 lbs. food.
- July 11—Camped in Laurier Pass for a few days to climb.
- July 14—Caribou Pass.
- July 18—Akie Pass. Begin to map new territory.
- July 19—Camped by Akie River for several days to climb and explore.
- July 22—Start homeward.
- July 25—Caribou Pass. Climbed mountains for a few days.
- July 31—Laurier Pass.
- Aug. 2—Cypress Pass.
- Aug. 7—Arrive Hudson Hope after 491 miles.

Cardinalis Barberini

MARJORIE F. WARNER

In recent years I have seen quantities of the cardinal flower (*Lobelia cardinalis* L.) blooming in flooded meadows in western North Carolina. Possibly because the blossoming period was far advanced, or because the plants were in dense masses, the flowers looked less brilliant than they seemed in my Iowa childhood. As I recall it, the sight of a solitary spike or two reflected in the water at the openings of the "swales" was a memorable feature of our drives through flooded river bottoms. They were always inaccessible without deep and muddy wading, and we rarely picked them. It was not because we minded wet feet but that my father could not stop for such adventures. Possibly also, we came to realize that after we got it home we had only a pale image of the brilliant scarlet flower in its natural setting.

In later years I have seen it grown effectively in bog gardens or in other rich moist soils, but it never thrills me like the inaccessible wildings of long ago. My early memories gave the zest of contrast to the first account of its cultivation in Europe. Ferrari¹, who knew the cardinal flower in the gardens of Cardinal Barberini in Rome, gives elaborate directions for its culture.

The American Trachelium, also called the cardinal plant, being of a very delicate nature, is to be grown in pots which will guard it from the many evils to which this plant is subject. Good garden soil well pulverized and free from all pests

should be used, as they are very glutinous of it. Although it does not fear the cold, it is better to put it in a warm or temperate place over winter. Also being very friendly to heat, one must not fail to water it.

By transplanting every year it lasts a long time; otherwise the multitude of its offspring will choke and destroy it. In February or not much earlier it is taken up and transplanted, removing the offsets for propagation, and in a longer or shorter time, if the original plant is vigorous, the offsets will be still more so. The new shoots, separated with their rootlets from the rootstock, should be planted at a depth of two fingers, well to the top of the foliage, spreading out the rootlets so that they may absorb nourishment more abundantly, and when they are planted, water them immediately so that the soil may adhere to the roots, and set them in the sun. For this plant is averse to dark and shaded places, where it readily decays. But if it shows signs of blooming prematurely because of the excessive heat of the sun, it should be moved. The plant comes true from seed; so one cannot look for any variety from this source.²

In Pre-Linnean times the cardinal flower was variously known as Rapuntium, Rapunculus, or Trachelium, which seems to be the oldest name. Ferrari called it "Trachelium Americanum, flore rubro," but Fabio Colonna, a contemporary Italian botanist who classed it as a Rapuntium, set it up as a new genus under the name *Cardinalis Barberini*. In his notes on

¹Ferrari, Giovanni Battista. *De florum cultura, Romae, excudebat S. Paulinus*, 1633, p. 188, 344-345. Also his: *Flora, ovvero Cultura di fiori . . . trasportata dalla lingua latina nell' italiana da Lodovico Aureli*, Roma, P. A. Facciotti, 1638, p. 190-191, 342-343.

²Our extracts are not exact or complete translations.—M.F.W.

mer, qui inter omnia moxa studia illarum quoque &
FLOS CARDINALIS BARBERINI.



tur, eaq
flores, &
fouentur
radice
repent
laetesc
sue sol
promer
strata,
si quia
tia, &
deinde
le (trij
alis diu
vulgaris
ra sive
no feri
medio
rum v
sum de
tota pli
sed exi
ad sun
spicam
duplici

the Mexican plants of Hernandez,³ Colonna supplements the description of the "Cacauaxochitl" with that of a new and beautiful plant which he thinks closely related to it, the "Planta Cardinalis Barberini," or "Flos Cardinalis Barberini," which he characterizes as the "largest of the Repantiums, with a spike of scarlet flowers," and continues:

This exotic and particularly elegant plant, lately brought to those of us who are interested in such things, appears to be without a special and established name. With its rich scarlet diurnal flowers, exceedingly joyous in aspect, in color related to the vesture of cardinals, it has been, as we may guess, designated by botanists and commonly called by the name of "Herba cardinalis."

Wherefore I, considering its elegance and novelty . . . would not wish either to abandon the illustrious name "Cardinalis," or to detract from it in any way, but rather to render it more distinguished by placing the individual plant as a species under this generic name. Therefore I wish to openly publish the name "Cardinalis," as associated with the distinguished and renowned Cardinal Barberini.

Colonna pays elaborate tributes to Cardinal Francesco Barberini (1587-1679) and his uncle, Pope Urban VIII, and in honor of the former assigns "Cardinalis" as the genus, with "Barberini" as the cognomen or specific name. He gives a detailed technical description and a figure of the plant (page 131), and in conclusion says it

³Hernandez, Francisco. *Nova plantarum, animalium et mineralium mexicanorum historia . . .* dein a Nardo Antonio Reccho in volumen digesta. Romae, sumptibus B. Deversini & Z. Masotti, typis V. Mascardi, 1651. "Fabij Columnae Lyneei in Nardi Antonii Recchi . . . Rerum medicarum Novae Hispaniae volumen, Annotationes et additiones," p. 879-880. Colonna's preface is dated June, 1628, but his notes remained unpublished till 1651.

was brought to his notice by the reverend and learned Joannes Baptista Sersalis (or Sersale), Clericus Regularis Neapolitani Theatinorum, who had sent him other rare plants, but had given no habitat for any of them. Colonna implies that the cardinal flower was already in the Barberini gardens in Rome, but as he was located in Naples, he may not have had a chance to examine it critically until he got a specimen from Sersale in the same city. Ferrari, whose directions imply that it had been grown successfully before 1633, does not mention either Colonna or his striking name for the plant, and probably did not know it had been dedicated to the Cardinal. There is nothing to show when or how it reached either Naples or Rome, but it was in Italy in June, 1628.

Having been known and cultivated in Italy so early, one might surmise it had been introduced to Europe by an Italian explorer, but it was known in France before the date of Colonna's description. It is in the "Catalogus planitarum horti Renati Morini . . . M.DC.XXI" (Parisii, 1621), and is illustrated (page 133) in Pierre Vallet's "Le jardin du Roy très chrestien Loys XIII" (Paris, 1624).

1621 is the earliest date fixed for the cardinal flower, though it may have been in Paris before that. Both Vallet's book and René Morin's "Catalogus," which is a kind of trade list, include two other "Canadian" plants, one of which bloomed in France in 1613, and the other in 1612. Vallet's figures were drawn from plants in the garden of Jean Robin, who as "King's Botanist" was often first to receive and propagate novelties brought home by French explorers. Morin gave only its common name, "Cardinalis planta," which afterwards was generally used as a synonym with "Trachelium Amer-



icanum flore rubro," which was presumably given to the plant by Jean Robin. It is on Vallet's plate, which was certainly drawn by or before 1623, and is apparently the earliest botanical name.

Mordant de Launay, in "Bon Jardiner" (1813), says the cardinal flower was sent from Canada to France, and thence to England, and English records support this. R. T. Gunther, in his "Early British botanists and their gardens" (Oxford, 1922, p. 331), prints a list written by John Tradescant the Elder in his copy of Parkinson's "Paradisus," showing that he got "Cardinalis planta 2." in 1629 from "Mr. Robine," presumably Jean Robin of Paris or his son Vespasien. The plant was already in possession of John Parkinson, who in his "Paradisi in sole paradisus terestrис" (London, 1629, p. 356), describes the "Trachelium Americanum flore ruberrimo, sive planta cardinalis. The rich crimson cardinals flower," which he had received from France for his garden. Both "Mr. Robine" and René Morin sent many plants to Tradescant, and probably also to Parkinson, but there is no record of this plant in England before 1629.

Parkinson was one of many who have inferred that it was "the plant of the cardinal." I originally supposed it had been named in honor of some prelate, but such an association would surely have been preserved by history or tradition, and I have searched in vain for any other save with Barberini. Both Ferrari and Colonna indicate that the plant had no other personal associations, and emphasize the idea that the common name was given from the color of the flower, "related to the vesture of cardinals."

Colonna's dedication to Cardinal Francesco Barberini was natural, because the latter was one of the great-

est patrons of the sciences and arts of his time; and it was fitting, in that he was a lover of plants and had many of the newest and handsomest species in his collection at Rome. Ferrari's "De florum cultura" (1633) includes plants from other Roman gardens, but is specially devoted to those of Barberini, where even among the stately flowers brought from every part of the world, the American cardinal flower was specially prized and cultivated.

What may be called the Italian interlude of this plant played a big part in its popularization. The seventeenth century produced numerous manuals of gardening, many of them largely imitated or translated from Ferrari. So the latter's cultural directions occur in German, Dutch and French, as well as Italian, usually without evidence of further knowledge of its cultivation. One of the more original and practical of these garden books, Georg Viescher's "Blumengarten" (Nürnberg, 1645, p. 71), states that the cardinal flower is "particularly beautiful and royal colored," but the author says he has never paid any great attention to it because the plant is difficult to grow. The striking beauty of the flower was soon widely known, and it found a place in most of the botanical gardens and fine private collections.

I have not followed all its European wanderings nor traced its different names, but infer that the plant must have been largely distributed from Paris in the first place, because of the early use of "Trachelium Americanum," which originated there. It would seem that the high-sounding *Cardinalis Barberini* would have found popular favor at once, but I find no references to it; apparently Colonna's notes, after remaining unpublished so long, were little known after publication. Meanwhile the plant received other names,

notably "Rapuntium." Colonna himself classed it as "Rapuntium," and Linné in his "Species Plantarum" (v. 1, 1753, p. 930), cites under *Lobelia cardinalis* the polynomial, "Rapuntium maximum, coccineo spicato flore. Hern. Mex. 879, t. 880." This name was not, of course, by Hernandez, but it was easy to overlook Colonna's authorship; the omission of his name, *Cardinalis Barberini*, while citing his description and figure, was probably deliberate.

The loss of this grandiose name was not an unmixed misfortune, as it savors

too much of "pomp and circumstance" to fit a plant of such lonely individuality. The Linnean name seems a trifle less personal and therefore less incongruous, but to those who know it best, the technical name is relatively unimportant. Whether its scarlet spikes are seen across a sunny stretch of marshland, or among the rocks in a rushing trout stream, it is preninitely the cardinal flower.

Walpole, New Hampshire
March, 1948

Amaryllis Hybrids

(Syn. *Hippeastrum*)

Easy to Grow

GEORGE B. FURNISS

Should you want some brilliancy of color to cheer the drab dreary season between the time when the Tuberous Begonias quit and begin again, then we suggest the Hybrid Amaryllis. A hot-house is not required; household heat with plenty of light is sufficient in cold climates to have bloom out of season from these flowers of distinction, with their decorative foliage. They are individualistic and do not behave alike. When they show signs of growth, help them along; and when they want rest, which is shown by yellowing of foliage and lack of vigor, then ease up on the watering. This difference in behavior spreads the blooming season over a long period, instead of all plants coming into flower at one time such as occurs with many other bulbs.

Perhaps we may get a better understanding of their simple needs by knowing how the bulbs are grown for the market. In Southern California, bulbs are commercially grown by the thou-

sands in open fields for a period of at least three years, covering from seedling stage to blooming size; and longer, for larger bulbs. The weather is exceedingly "unusual" hence their culture does not require a uniform temperature. The days in summer are generally hot and nights cool but no rain. Winter days may be in the 40s or 50s F. and nights 40s and upper 30s. Morning frosts may occur which dip as low as 20; perhaps 16. Plants are given moisture at all times so irrigation is practiced in summer and in winter in absence of adequate rain. Average soil is sandy but heavy soil seems to answer.

Bulbs and plants are not tender. For instance, the writer, in central California, winters his potted hybrids in cold frames without artificial heat or covering other than the glass whitened. The sash is kept propped up about an inch to permit a circulation of air. Bulbs and foliage survived last winter, six weeks of unprecedented, piercing

cold and frosts, frequently 24 low, and this included a pot of a year-old seedlings. Many subtropicals were killed back.

Home gardens of Southern California grow the bulbs, which are naturally evergreen, in the same beds among other perennials. However, for home use the bulbs are mostly grown in pots so as to be portable for display purposes in patios, summer and lath-houses, porches, home entrances, nooks, and interior decoration. The flowers when protected from the sun, bloom with richer color, softer texture and last longer. Many growers repot every year which dispels the idea that the roots should remain undisturbed. This information is a boon for those in cold climates because a few bulbs may be bloomed in the house and the balance stored over winter. The storage method is this: In late September watering is slowed up by lessening the amount and frequency so that by early November the soil is about dried out. Plants are then knocked out of the pot, the roots washed free from soil by sousing, then shaken of excess water and dried off in the shade for a few minutes. The roots are fleshy and fragile and are handled carefully. Some of the foliage may have yellowed while most is still green which finally snuffs off.

Plants are then planted in a box of dry sand, nose tips slightly covered, and stored in a cool light place . . . light needed at sprouting time. The bulbs may remain dormant in the dry sand three or four months, or until the temperature reaches about 45-50 degrees normally, or artificially applied to hasten. As green tips show, the bulbs are taken up with a hand fork and put in 6 inch pots, or 7-8 inch for larger bulbs. Many different soil formulas are used varying from straight garden soil, generally sandy, to various

mixtures, including soil, leafmold, and sand, but all growers agree on good drainage . . . about 1 inch of broken crock. Bone meal is used for enrichment as it is slow in action and does not burn tender roots; about a rounding tablespoonful to a 6 inch pot. The bulb sits with neck and shoulder above the soil surface and surface an inch below the pot rim as a basin for watering. The soil is settled about and between the roots by thumping the pot up and down on a solid surface; this is to avoid air pockets from forming within the soil. The pot is thoroughly watered and then set aside in a well lighted room in about 50 degrees; too warm a room will induce immature growth. After growth takes hold, watering is gradual. Deep planting encourages offsets which weakens the mother bulb whereas shallow planting affords a few bulblets which may be pried off, with a table knife, when thumb size and planted.

Again, there are those who grow the plants year after year without disturbance until the roots break the pot. These growers carefully renew the surface soil annually under the erroneous idea that the roots must not be disturbed and in addition use liquid fertilizers. This is an easy way but repotting annually, or even occasionally, is considered to give better results. If plants are kept in the same pot, then a resting period is allowed from September to November, as above outlined, and then watering is gradually resumed. This resting time may be varied according to climatic conditions. Some let the bulbs go dormant in the pot and there remain dry until green tips appear. Each method has its advocates. Despite what is done or not done some bulbs go dormant or refuse to do so.

All methods come to the same critical period. This is when the plant fin-



- 1—The bulb is over 30 years old. Luther Burbank, the "Plant Wizard," was then introducing his sensational "Giant Hybrid Hippeastrums" and this is one of the originals.
- 2—The off-set shows no advantage from being nursed by the mother-bulb. Had it been detached when thumb-size and separately grown, both would now be better off.
- 3—The mother-bulb has had its bloom. The cluster is a substitute, borrowed from a recently purchased bulb (shorn of roots) so as to show that the first flower produced comes undernourished; flowered without foliage 3 months after planting. Energy was derived from bulb tissue and from scant rootlets that were just forming; replacement of roots lost takes about a year to restore.

ishes blooming and at which time the flower stems are cut off at the base. Instead of resting as most bulbs do, the bulb then begins a new cycle of growth. New flower-buds begin to form within the bulb for next year's bloom. Also, begins a renewal of bulb tissue which has become exhausted, soft and flabby, from flower production. This build-up period requires full sun, hot weather to ripen the bulb, and a supply of plant food to restore energy. A liquid nutrient is made by using a garden fertilizer in proportion of a rounding tablespoonful to a gallon of water applied fortnightly (1st and 15th of the month for memory convenience). Pots are generally plunged in the open garden for strong heat and also kept moist until September arrives for the resting period. The time to buy new crop bulbs is from October to February; the earlier, the better. These are shorn of roots and a mass of roots is necessary to produce quality flowers. Use

a 6 inch pot and give one thorough watering and place in a well lighted room at 45-50 degrees. After an inch or two of green growth, heat may be gradually raised to 60. No water as long as soil is slightly moist, testing by inserting the finger deeply, next to the rim. Over-watering may rot the bulb and high heat forces premature growth because there is lack of supporting root system for normal function.

Buy selected bulbs from reputable dealers. Quality is worth the higher price asked. Bulbs are grown in fields in mass crops, mostly in California and Florida, and generally without regard to selection of seed or parentage. Vigorous seed bearers, as a rule, produce vigorous bulbs but these lack quality in flowers and the run of the field is mostly that. The older, larger bulbs produce more flowers, perhaps two crops, and larger blooms.

Oakland, California

Rock Garden Notes

Boykinia Jamesi

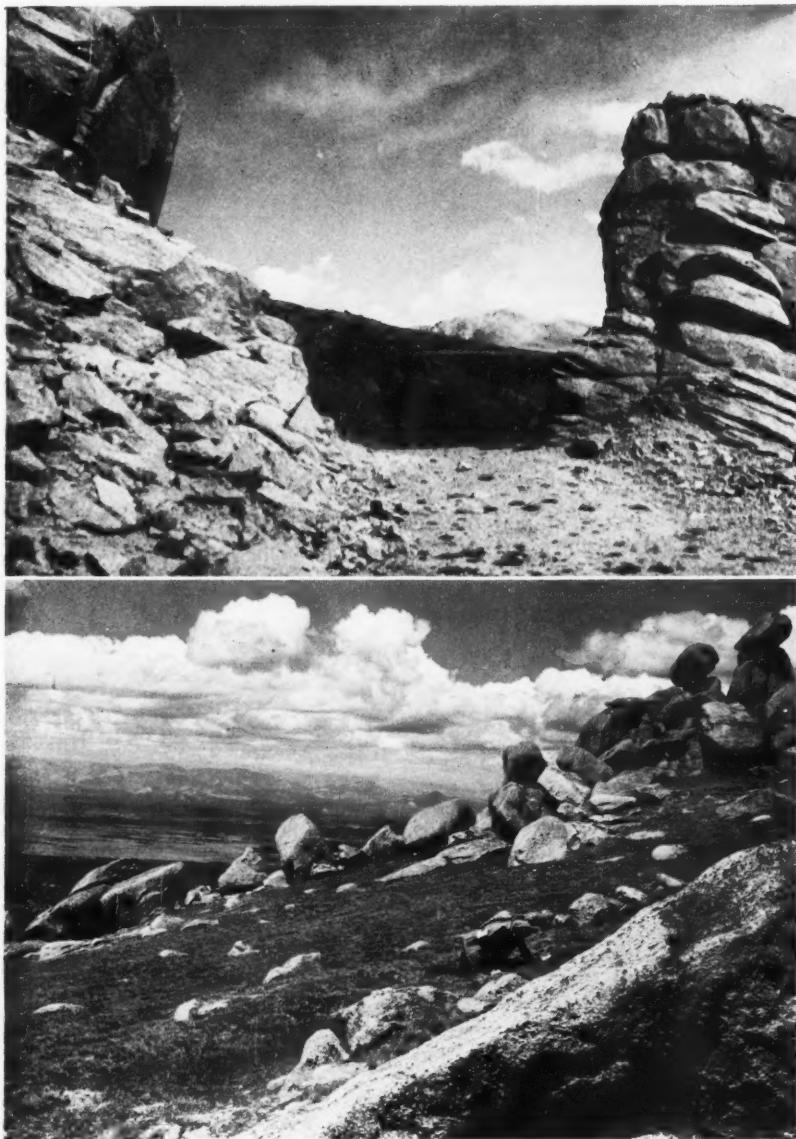
Among the huge tumbled rocks of pink granite above timberline on Pike's Peak there grows *Boykinia jamesi*, one of the very best Rock Garden plants.

This Boykinia has everything that is desirable—except an eagerness to bloom while young. From April until Christmas its foliage is attractive, round leaves one to two inches in diameter toothed and frilled around the edges, neatly imbricated, a clean live green until frost when they turn crimson and remain ornamental until zero-ish weather slaps them down. Rising from this generous foliage (from June to September according to altitude) are six-inch spikes of rose pink flowers, heu-

chera like but wide open—no drooping bells; they smile straight at you. Buds are bright crimson, open flowers clean pink, dying flowers dull crimson, so whoever dubbed it "Purple Saxifrage" was either color blind or saw it growing in some soil that turned it sour.

It is well worth the drive up the Pike's Peak highway, plus a short climb, to see this beauty trickling down six-foot vertical crevices between big boulders and spilling out into flat pools on and between rock tables, perky pink spikes generously decorating the whole.

While this saxifrage is distributed over other peaks of the Colorado Rockies, sometimes even as low as 7,000 feet elevation, it seems to revel in just the



Kathleen Marriage

The home of *Boykinia Jamesi*, Pike's Peak.

conditions that it finds on Pike's Peak. One friend brought us this, in his horse's nosebag, with an offering of other high treasures from 12,000 feet up in the Tarryall range. It grows, too, on Long's Peak. In all its haunts it is always between rocks. Does it know that such suggestion of mass and permanence enhances its beauty?

Now for luring it into the garden: it is quite easily transplantable but is rather slow in becoming established and really quite deliberate about deciding to bloom. When it does it is worth the wait. In our garden it grows happily in a mixture of equal parts sandy loam, peatmoss and sharp sand (or clean gravel) on an extremely porous subsoil; this in a north exposure and always snuggling up to a rock. In this climate of sunny dry winters it chooses any exposure except south—even in its cold mountain home at 11,000 feet.

One plant tucked into a retaining wall by steps at our mountain summer cabin (9,000 feet) blooms faithfully every year. This faces north and lives in partial shade of spruces most of its time.

Chemical reaction? We find the little soil contained in the gravel and chiprock around its roots in its native habitat is a slightly acid humus, often pine duff. Probably it has a fine disregard for chemistry. All it asks is a comfortable rooting medium and opportunity to keep its feet and its collar dry during autumn and winter.

It is no hardship to travel either driving the road or climbing the trails to see this at its best. Pike's Peak with its satellite humps is a lone peak about a hundred miles east of the continental divide so at every turn there is a glorious open view first into spruce-edged valleys each with its ice cold water stream hurrying and tumbling down

over rocks, then higher the panorama northward of plains from which high ridges, bluffs and baby mountains rise and tail off eastward.

Higher still—now above timberline—where Boykinia decorates rocks still in their elemental upheaval—views become bigger and bolder. We can look southwards to the Sangre de Cristo range, a happy hunting ground too for plants, while at our feet the ground drops away suddenly a thousand feet or so to a gravel slide where we first found the little *Aquilegia saximontana*. There are no words to describe the combination of delights on such a trek. Acres of alpine flowers, breath-taking views and intoxicating air defy description.

KATHLEEN MARRIAGE.
Colorado Springs, Colorado.

Gilia Nuttalli

Gilias of the Rockies incline to have an appearance of gay abandon, colorful but untidy. One that is most neat and tidy is *G. Nuttalli*, fit for any Rock Garden and assertive enough for the front edge of a small perennial garden. At the first glance the white star-like five petal flowers suggest an erect dwarf phlox; the light green narrow leaves are arranged in tufted whorls at intervals along the stems rather suggestive of the needles of lodgepole pines under which they grow.

Two recommendations for this as well as for its well-behaved foliage and flowers: its general appearance is good, never straggling, and it is a tireless bloomer.

Although its general rooting habit looks amenable to transplanting we have difficulty in establishing collected plants, even youngsters. Seed germinates well and plants in the garden do a little self sowing successfully.

We find it about 10,000 feet up, on



Kathleen Marriage

Gilia nuttalli

the Continental Divide in sandy or gravelly soil, often in deeper richer soil than many true alpines choose. *Gentiana parryi* and *Penstemon procerus* are usual companions, all of them in clearings of Lodgepole Pine (*P. contorta*).

We drove a mile or so off the road last June along a "timber road" near Leadville to find a level clearing in the pines for lunch and a nap. Our rugs had for mattresses hundreds of plants of *Gilia nuttalli*, its young fresh green stems not yet showing buds.

KATHLEEN MARRIAGE.
Colorado Springs, Colorado

Query

One of our members, living near the District of Columbia, would like suggestions for a plant to grow between paving stones in a shady location, that will be evergreen and will give off a pleasant odor when trod upon. Naturally it should be a plant of relatively low stature. What would you suggest. Remember that shade in this case means shade! From trees and with some root competition. Soil is naturally acid in mild degree.

A Book or Two

Pacific Coast Gardening Guide. Norvell Gillespie. Doubleday and Co., Inc., New York, 1949. 306 pages, illustrated. \$3.00.

This book is written for gardeners on the Pacific Coast with some data for other western gardeners in those regions that have some relation to the conditions of the West rather than to those of the great Rocky Mountain plateau. The author, former garden editor of *Sunset Magazine*, now in a similar position on the San Francisco *Chronicle*, for thirteen years has had ample opportunity to know the sort of thing that his reader's group would like to know and has proceeded to supply the data in palatable form. It is simply written and well organized. It is not intended that the book should have all the answers to all possible inquiries, nor is it intended as a source book for data on all the possibilities that lie ahead of gardeners in that great area with its diversified climates and soils.

For what it sets out to do, it is well done. It should have many readers who will find it just what they have been looking for.

For the non-western gardener possibly the most interesting feature will be the lists of nursery addresses given after many of the special chapters for now the Eastern gardener turns to the West with pleasure as a source of plants that formerly he might have had to find, only in nurseries abroad. He may regret only that the lists are not longer and that they are not annotated to suggest the extent of the material offered. That he can find out for himself! The most interesting chapters and lists are those that relate to the several groups of plants that do extraordinarily well on the Coast.

There is no reference to the author's own garden but there is a goodly list of names of persons who have helped in one way or another and they are mostly persons who do garden and garden well.

How to Increase Plants. Alfred C. Hottes, A. T. De la Mare Company, Inc., New York, 1949. 279 pages, illustrated. \$3.00.

This new volume is designed to take the place of Mr. Hottes' earlier "Practical Plant Propagation," and he has made every effort not only to widen the scope of the field treated but to include all the fruits of experience and research that have accumulated.

Mr. Hottes says in his preface: "This book is not a record of personal discovery. To those nurserymen, scientists and amateur gardeners who have devised clever new ways of propagation, I acknowledge credit."

Nevertheless in the lucid and simple fashion that we have come to expect from Mr. Hottes, he has gone over the field and presented the materials in the familiar question and answer method that has served him well before, and that has been so eminently satisfactory to a large public. There are two indices, for further assistance.

Shrubs for the Milder Countries. W. Arnold-Forster. London: Country Life Ltd.; Charles Scribner's Sons, New York, 1949. 367 pages, illustrated. \$10.00.

This is a delightful book to read whether one means to find in it any inspiration or not. It is also the sort of book that is almost impossible to review in any fashion that will not be irritating to the possible reader, and that is one's last wish in such cases.

It has to do with the remarkable number of woody plants, that have shown themselves to be desirable for planting in the warmer parts of Britain, especially Cornwall. It is also concerned with the use of these plants in positions that will be relatively permanent with the sad knowledge of the changing world scene that will make the preservation of large private estates with their amazing collections of fine plants, more and more difficult of maintenance. The author points out in this connection that since towns are continually planting trees and shrubs in the parks, on their streets and elsewhere, it is perfectly reasonable to consider the planting of rare and splendid things if they have the stamina to endure the conditions. All of this is quite sound and we can well take this to heart although our own problems relating to permanence may wear a different face.

The first chapters are largely given over to annotated lists of plants that would "do" under certain specified civic conditions. They are, of necessity, repetitious. The later chapters are given over to the discussion of trees and shrubs in general from among those that would come into the earlier requirements of the author's field. One of the continued references is to wind, a subject that is not often very fully handled in most books. There are many references to plants seen by the author in this country and some comments of the differences in behavior. There is no intention, however, of writing the book for general appeal, it is specific and local. It is rather sport none the less to find the tables turned in some cases and a British author telling a British subject how some things grow and behave over here.

For us, the great value of the book beyond bringing to our attention the

desirability of using good stuff, will lie in our reaction to the stimulus of reading about plants that we may not know at all, but that we ought to want to know. Many of them will be quite impossible for most of us but I believe that all of us will be intrigued to find perfectly familiar friends in the lists, things that we should not have looked upon as needing the more temperate climate of the south of England.

The Pacific Coast people will be delighted with much of it, the people in the Pacific northwest will be specially delighted even after their recent winter season, the people in our South should read with some concern to be sure that they are not overlooking even more than they are now neglecting, the rest of us, yes, we will have to read for the sheer delight of knowing what is beautiful wherever it is.

There is little likelihood that such a book could ever be written here with any profit to any one, unless it were reduced to encyclopedic form and so curtailed, in which form it would lose its chief delights. But it is a book that should be read by the serious horticulturists who live over the entire country, as a spur to their own gardening and their own activities private and civic. The sections on camellias will not enliven too many collectors here and I am sure that the southerners will yield no pride of place to the Californians in regard to clones of *Camellia Sasanqua*. The people interested in deciduous magnolias should rise in a body to pursue the new names and forms, the azalea people in this country will sniff at the treatment of their hobbies, especially the mixture of *Kaempferi* × *malvatica* hybrids among the Kurumes, and the notation of the Kurume hose-in-hose varieties as doubles. Much more could be made of many kinds of little details, but that is not important.

The vital matter is to read it and then go out and do something in your own garden and town.

Table Setting for Everyone. Dorothy Biddle and Dorothea Blum. M. Barrows and Company, Inc., New York, 1949. 128 pages, diagrams. \$2.00.

It would be very neat to dispose of this as "more Biddle and Blum" but that would be hardly sporting. It tells in the usual vernacular that is peculiar to this pair what they feel should be done about setting the table for every kind of occasion, except the plain business of eating good food without distractions. There are the useful bits about tables set up in flower shows for the animals to look at, the poor creatures who pay the gate and come for the fun of it. There are all the usual good points and all the usual carelessness, such as approval of a table presumably set for Beatrice by Dante with a centerpiece that included oriental persimmons! The typical careless adjective like "luscious" applied to the flowers of Strelitzia!

If you want to annoy your family here are all the prescriptions. If you want to run the gauntlet in the flower show, here are plenty of notions!

It is not a garden book, Thank God!

A Garden of South African Flowers. K. C. Stanford. Maskew Miller Ltd., Cape Town, South Africa, 1949. 63 pages, 14 plates. \$—.

This slender volume, Miss Stanford tells us disarmingly was "written for my own satisfaction." It is entirely personal and limited in treatment to the special plants that Miss Stanford has grown in her own garden and nursery. The prose has the same contagious quality that we recall from her lectures

when she was here some time ago. No attempt is made to cover the flora of the entire area. The arrangement is that of a diary and we feel the succession of bloom; but there are a few brief pieces at the end for cultural advice. The plates are only so-so but one gets a good look at the flowers of *Homoglossum watsonianum*, *Monsonia speciosa* and a most interesting habit picture of *Crinum longifolium* as well as some of the things that we already know about at least in part.

Gardens in the Modern Landscape. Christopher Tunnard. Charles Scribner's Sons, New York, 1949. 184 pages, illustrated. \$5.00.

This is a very irritating and therefore very useful book. On looking quickly through its pages one is impressed with the almost malicious skill in which the author has gathered damning evidence from our past to serve as a prelude for our inevitable future. His proposals for that future may look as comical in some future time as do the relics he has presented. But wherever one looks, or however one reads, he must remember the title, which has a limited and very specific meaning, even if the author does not always stay within its implicit bounds.

The important thing for any reader perhaps is to realize that the professional landscape architect is looking at the garden with an eye that is now affected in its vision by the ways of thought and feeling that are supposedly stirring the architects. The treatments of plant materials and the general discussion of plant materials will not interest us very much since they are based upon British locales but the way in which Mr. Tunnard and the artist Mr. Cullen look at them should be of the liveliest concern while their

comments are good for more than one smile.

There is an entertaining final chapter by Dr. Hudnut, Dean of Harvard University that should be read with equal care. Much of all this is quite daft but it remains a good book in spite of the fact that the weak will ape the poorer portions, for the quick will be quickened even to the creative urge, for they will remember that no artist provides a formula.

Chemistry and Uses of Insecticides. E. R. de Ong. Reinhold Publishing Company, New York, 1948. 345 pages, illustrated. \$6.00.

Quoting the statement on the dust cover this book is "particularly well adapted for use as a textbook in agricultural colleges as its method of presentation is highly systematic and thorough, and since the treatment is presented from the practical point of view. It will also be an excellent volume for insecticide manufacturers, botanists, entomologists, and all who are concerned with agricultural research."

"Particular attention is given to the subject of fumigation. The author furnishes a definite critical evaluation for all the insecticides discussed. This is intended to be a handbook of insecticides designed primarily for the use of growers in all branches of agriculture. It includes a complete dictionary of insecticides, and glossary, and numerous tables of data, standards of performance, etc. The inclusion of these data in the form of appendices will increase the value of the book to the practical user."

For our readers this will be a reference work. It is written in so clear and simple a fashion that once the special vocabulary is accepted, it will be read with interest that grows on one. It probably will not be a book that one will use in place of the smaller handbooks intended for "home use" but it should have a wider use than the ordinary reader might suspect from his first consideration.

Pruning Is Simple. John and Carol Grant. Frank McCaffrey Publishers, Seattle, 1949. 59 pages, decorated. \$2.50.

This is a review of the moment of all the things that have been said before about the proper ways of pruning, brought to the moment, in a Seattle locale with examples for discussion that might not be found in many other groups. The illustrations are sketches, too much on the arty slick-magazine-style to please this reviewer but very smartly done. The advice is quite sound, the presentation will make no particular demands on concentration, and the advice if followed should make for better garden care. There are a goodly number of ideas put forward by the authors that could be debated, but that only adds to the value of the book for thinking people; and no book is a good book for the non-thinker for he will get into trouble anyway with any book.

As one can note by the number of pages, it is not very much of a book, the text being scarcely more than an expanded magazine article, enlivened by sketches and fortified by lists.

The Gardener's Pocketbook

Viburnum suspensum

One who has lived most of his life in an area with essentially deciduous flora is always interested in any other and it has been noticed that in regions far south of this (D.C.) there are many areas in which the broad-leaved evergreen shrubs and trees for his borders, mitigate in part the ash-gray color of pecan groves in winter, among other plants this evergreen viburnum.

Unlike many such, it grows with a fair pace and in five years has made a thick shrub some 8 feet tall, and possibly 5 feet through. The carriage of the branches is essentially upwards so that the leaves show as much of the somewhat lighter colored, under surfaces as they do of the more glossy upper surfaces. This habit is also happy in that it does not hide the inflorescences, borne as in all viburnums but are carried quite differently. Instead of rising above the leaves they hang down with a curious curve as if the crowded mass were being poured from some container. The individual flowers are not large but are neatly made as in other snowballs, an off-white color, not quite creamy nor even rose-tinted in bud, but just not quite pure white. The most interesting thing about the plant is the scent that diffuses through the garden even on the somewhat chilly days of mid-winter. In Mississippi, this year it began to flower in late December and was in full bloom by mid-January. As the flowers are not showy little thought was given to the plant when the garden began to fill with curious perfume that seemed strangely reminiscent of some familiar shrub. A little searching brought me to the viburnum but much time elapsed

before I recalled that the scent was that of the aronia common to these parts, a somewhat pungent not altogether pleasing scent, nothing to compare with the delightful odor of *V. Carlesii* and its kin but infinitely better than that of some of the deciduous species.

The growth is so dense without clipping, that one could certainly consider this for use as an informal hedge. How well it would respond to shears would depend probably upon the skill of the operator, who would have to go over the plants twig rather than lop off the whole mass as one may safely do with privets. On the other hand, since in southern regions, the circulation of all moving airs in summer is an essential, one may not want a thick hedge, certainly not one that would be as dense as a well trimmed clipped hedge might make.

The only other evergreen viburnum flowering at the time or even a little earlier was *Viburnum Tinus* so often used for hedges in Great Britain and in gardens on the Pacific Coast. This has a rather more open habit in the South and an entirely different habit in all regards with leaves that fall into more natural positions and flat topped inflorescences that give off a faint but quite sweet scent in the cold airs.

Whether or not either of these species ever produce their fruits in the South where there are low temperatures during the flowering season I do not know. Their berries are said to be black but no one has noted whether they pass through all degrees of red and purple before they turn black, details of no import to the taxonomist but of more than passing interest to the gardener.

